

CLAIMS

1) Anti-skid system for vehicle wheels, comprising gripping elements, available for contact with the tread of the wheel, arranged at the free ends of arms connected to a central connecting body, a clamping element (15) apt to be fastened to the rim of said wheel, and a constraining assembly able to establish a connection between said arms (21, 22) and said clamping element (15), characterized in that the arms (21, 22) are in the form of flexible laminar strips and in that said constraining assembly comprises at least one linear traction member (30) which is non-extendable, but adjustable lengthwise.

2) Anti-skid system according to Claim 1), characterized in that said non-extendable linear traction member (30) is firmly connected to a constraining element (18) fixed to the clamping element (15) and passes through said connecting body (26) to which it may be constrained in an adjustable manner.

3) Anti-skid system according to Claim 2), in which said non-extendable linear traction member is a chain (30) and in that said connecting body (26) has means for locking the chain.

4) Anti-skid system according to Claim 3), in which said connecting body (26) has a flared shape which is provided, at its inlet mouth, with at least one radial groove (31, 32, 33, 34) inside which a link of the chain (30) may be inserted edgewise so as to obtain the desired locking action.

5) Anti-skid system according to Claim 4), in which said connecting body (26) has an additional raised lip (261) also provided with a groove (341) inside which another link of the chain (30) is able to be arranged so as to keep the latter raised from the plane in which said arms (21, 22) lie.

6) Anti-skid system according to Claim 3), in which said locking means comprise a hook-shaped element (45), hinged (46) on said connecting body (26), operable by means of a lever (47) and able to be inserted into a link of said chain (30).

7) Anti-skid system according to any one of Claims 3) to 6), in which the free end of said chain has resilient fastening means (35, 36) able to keep said chain adherent to the anti-skid system.

8) Anti-skid system according to Claim 7), in which said fastening means are composed of a resilient buckle (35) which can be fastened to a hook (36) integral with a peripheral section of one of said arms (21, 22).

9) Anti-skid system according to any one of the preceding claims, in which said constraining assembly comprises a bracket (28) to which the end of said non-extendable linear traction member (30) is fastened and which is slidably mounted on a connection rod (18) in turn slidably inserted in a collar (17) integral with said clamping element (15), said clamping element being intended to hold a bolt (13, 14) of the wheel rim (12) and said rod (18) having a longitudinal axis perpendicular to the tightening axis of the clamping element (15) and arranged radially with respect to the wheel so as to intercept the axis of rotation (a-a') thereof.

10) Anti-skid system according to any one of the preceding claims, in which said arms have an elbow shape, the fold of the elbow being intended to come into contact with the rim (12) of the vehicle wheel.

11) Anti-skid system according to Claim 10), in which said arms are two in number and are able to rotate freely about the central connecting body in a position where they are superimposed, when the system is not used, and a working position, where they are arranged at about 90° with

respect to each other.

12) Anti-skid system according to any one of the preceding claims, in which the clamping element (15) has a collar (17) from which there projects a bell-shaped body (50) having, at least in the inlet mouth portion, a chamfered internal surface (51) able to co-operate with a corresponding chamfered surface of an internal sleeve (52) which can be engaged with and tightened on a bolt (13, 14), said sleeve (52) being able to slide inside the bell-shaped body (50) actuated by a threaded pin (16) protruding from the collar (17) and displaced by an operating knob (19) which can be screwed on said pin (16) in opposition to said collar (17).

13) Anti-skid system according to Claim 12), in which said sleeve (52) has a circular base from which a series of deformable petal-shaped elements (52a) integrally extend, said elements being able to close together around the bolt when the sleeve is displaced inside the bell-shaped body (50).

14) Package containing a system according to any one of Claims 12) or 13) and a plurality of sleeves (52) of different sizes able to be engaged with bolts of varying sizes.

15) Clamping element for an anti-skid system according to any one of Claims 1) to 11), comprising a jaw component able to clamp a bolt and tightening means able to produce a relative movement between the jaw component and a containing body shaped so as to constrict gradually the jaw body around the bolt, characterized in that the jaw body comprises a plurality of independent clamping blocks (4', 25', 35') which are joined together by resilient means (5', 10', 20', 23', 30', 42').

16) Clamping element for an anti-skid system according to Claim 15), in which a bell-shaped body (50)

inside which the clamping blocks (4') slide has, at least in the inlet mouth portion, a chamfered internal surface (3') against which the chamfered external surface of the clamping blocks (4', 35') slides.

5 17) Clamping element for an anti-skid system according to Claim 15) or 16), in which said resilient means are compression springs (5') arranged circumferentially between the adjacent surfaces of said clamping blocks (4').

10 18) Clamping element for an anti-skid system according to Claim 17), in which two circles of compression springs (5'), one in the external portion and one in the internal portion of said clamping blocks (4'), are provided.

15 19) Clamping element for an anti-skid system according to Claim 15) or 16), in which said resilient means are thin pieces of rubber or synthetic material (10') fixed by means of bonding, vulcanization or mechanically onto the opposite surfaces of the adjacent clamping blocks.

20 20) Clamping element for an anti-skid system according to Claim 15) or 16), in which said resilient means consist of an elastic-washer retaining spring (20') engaged in slits (21') formed in the internal portion of the clamping blocks (4'), the washer exerting a
25 precompressive force tending to displace the clamping blocks (4') away from each other.

 21) Clamping element for an anti-skid system according to Claim 15) or 16), in which said resilient means consist of a resilient expansion ring (23') arranged
30 in a groove formed in the internal surface of the external portion of the clamping blocks (4').

 22) Clamping element for an anti-skid system according to Claim 15) or 16), in which said resilient means comprise an O-ring (42') arranged in the internal

portion of the clamping blocks (35') which blocks rest on an internal washer (36').

5 23) Clamping element for an anti-skid system according to any one of Claims 15) to 22), characterized in that it also comprises a thrust spring (11') between the clamping blocks and the bottom of the bell-shaped body (50), which is able to push the clamping blocks outwards.

10 24) Clamping element for an anti-skid system according to any one of Claims 15) to 23), characterized in that said clamping blocks (4', 25', 35') are six in number.

25) Clamping element for an anti-skid system according to any one of Claims 15) to 24), in which said clamping blocks (4', 25') have an external end which is step-shaped.

15 26) Clamping element for a an anti-skid system according to Claim 25), in which said clamping blocks are in the form of a grapnel (35').

20 27) Clamping element for an anti-skid system according to Claim 25), in which said clamping blocks (4') have an external end with several adjacent faces having different inclinations.

25 28) Clamping element for an anti-skid system according to any one of Claims 15) to 27), in which said tightening means comprise a shank (9') engaged with said clamping blocks (4', 25', 35'), passing through a support collar (17) and translation driven by an operating member (19) acting in opposition to said collar.

30 29) Clamping element for an anti-skid system according to Claim 28), in which said shank (9') is threaded and said operating member (19) is a knob which can be screwed on said threaded shank (9') in opposition to said collar (17).